

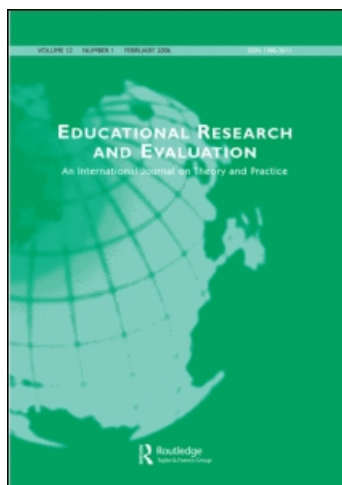
This article was downloaded by: [Monash University]

On: 12 October 2009

Access details: Access Details: [subscription number 907465088]

Publisher Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



## Educational Research and Evaluation

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title-content=t714592776>

## The Coaching of Teachers: Results of Five Training Studies

Simon Veenman; Eddie Denessen

Online Publication Date: 01 December 2001

**To cite this Article** Veenman, Simon and Denessen, Eddie(2001)'The Coaching of Teachers: Results of Five Training Studies',Educational Research and Evaluation,7:4,385 — 417

**To link to this Article:** DOI: 10.1076/edre.7.4.385.8936

**URL:** <http://dx.doi.org/10.1076/edre.7.4.385.8936>

## PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.



---

## The Coaching of Teachers: Results of Five Training Studies

Simon Veenman and Eddie Denessen  
University of Nijmegen, the Netherlands

---

### ABSTRACT

In this study, the results of five training studies evaluating the effects of a coaching program for use in Dutch primary and secondary schools are described. The coaches involved in these studies were: (1) school counsellors, (2) school principals, (3) mentors of beginning teachers, (4) mentors of teachers-in-training and (5) secondary school teachers. Coaching is a form of in-class support to provide (novice) teachers with feedback on their functioning and thereby stimulate the self-reflection and self-analysis needed to improve instructional effectiveness. Based on the pre- and post-training ratings of coaching conferences, a significant treatment effect was found for the coaching skills concerned with the development of autonomy (empowerment), feedback and business-like attitude. The pre- and post-training ratings from the coached teachers themselves showed a significant treatment effect for the coaching skills concerned with the planning of observational data collection. In addition, the teachers coached by trained coaches valued the coaching skills demonstrated significantly more than those teachers coached by untrained coaches. Inspection of the interactions for the adjusted post-test scores revealed different training effects for the five studies.

---

### THE COACHING OF TEACHERS: RESULTS OF FIVE TRAINING STUDIES

The purpose of this article is to summarise the findings of five training studies evaluating the effects of a coaching program for teachers in Dutch primary and secondary schools. The training studies involved school counsellors, school principals, the mentors of beginning teachers, the mentors of teachers-in-training and secondary school teachers. The training studies were conducted between 1993 and 1999, and the training is based on a coaching program

---

Address correspondence to: Simon Veenman, Department of Educational Sciences, University of Nijmegen, Spinoza-Hall 4.27, P.O. Box 9104, 6500 HE Nijmegen, the Netherlands.  
E-mail: s.veenman@ped.kun.nl

Manuscript submitted: June 15, 2000.

Accepted for publication: January 25, 2001.

developed by the Department of Educational Sciences, University of Nijmegen, and the Christian Pedagogical Study Centre (CPS), Amersfoort. The North Netherlands College of Higher Professional Education (CHN) also helped with the training of the mentors of teachers-in-training. The coaching program is based on the assumption that coaching can help teachers become more reflective and analytic, more self-directed and more adept at identifying areas for improvement and also implementing improvements in their instructional behaviour. Given that the coaching program involved different target groups, we will first briefly present some background to each study. We will then discuss the importance of coaching as a strategy for supporting and assisting the attempts of teachers to improve their instruction. Thereafter, we will present the design and results of the study.

### BACKGROUND TO THE TRAINING STUDIES

*Training Study 1: School Counsellors.* The development of a coaching program for school counsellors was based on Houtveen's (1990) study showing that Dutch school counsellors seldom provide in-class support for teachers. This study also showed that whenever in-class support was provided, it correlated highly with innovative teacher behaviours. The development of a coaching program for school counsellors was also motivated by the positive findings found for a staff development program entitled *Dealing with multi-grade classes* (Roelofs, Veenman, & Raemaekers, 1994). The instructional effectiveness of teachers who were both trained and coached was found to improve more than the effectiveness of teachers who were only trained, although the school counsellors in this study reported feeling less than fully prepared for the coaching task and expressed a desire for more formal training with concrete examples of the various coaching skills.

*Training Study 2: School Principals.* Studies of school effectiveness have shown the capacity of schools to improve teaching and learning to be strongly mediated by the quality of the leadership exercised by the school principal. High-quality leadership appears to be a critical factor in the shaping of organisational processes and structures, patterns of social interaction, beliefs, attitudes and the job-related behaviours of teachers (Hallinger & Leithwood, 1994; Levine & Lezotte, 1990; Scheerens & Bosker, 1997; Van Petegem, 1998). Studies based on the transformational-leadership model also stress the importance of involving school principals in the classroom in order to provide

instructional support, find out what teachers are doing in their classrooms, identify problems encountered during instruction and provide feedback (Hallinger & Heck, 1998). School principals are nevertheless frequently not prepared to provide the type of support, assistance and feedback which teachers need (Bridges, 1992). This situation certainly applies in the Netherlands where no specific training of school principals is legally required. The capacity of school principals to improve the teaching performance of their teachers is thus limited, and a training program for the coaching of teachers was therefore designed for school principals.

*Training Study 3: Mentors of Beginning Teachers.* Research on beginning teachers has shown them to encounter numerous problems and difficulties (Brock & Grady, 1998; Veenman, 1984). Having completed their initial teacher education program, beginning teachers often experience a 'reality shock' when faced with the demands of actual teaching. The problems encountered during the first years of teaching indicate a clear need for support and assistance. For this reason, school authorities in the USA, Europe and Australia have developed induction programs to ease the transition of beginning teachers into full-time teaching and to improve the instructional skills of new teachers (Ballantyne, Hansford, & Packer, 1995; Gold, 1996; Gratch, 1998; Huling-Austin, 1992). One main characteristic of these induction programs is the pairing of novice teachers with experienced teachers in a mentor-protégé relationship. The development of a personal, collegial and supportive relationship with one who is a novice in the field is considered a hallmark of mentoring (cf. Stanulis & Russell, 2000). The mentor must not only be capable of providing support (Barnett, 1996; Jones, Reid, & Bevins, 1997; Yeomans & Sampson, 1994) but also know how to strike a balance between guidance and autonomy (Mullen & Kealy, 2000). Reflection is considered one of the important elements for the development of autonomy and expertise on the part of a novice teacher (Furlong, 2000; Tomlinson, 1995; Zeichner, 1992). Mentoring should therefore foster 'reflection-in-action' and 'reflection-on-action' (Schön, 1983, 1990). Recent studies by Dunne and Bennett (1997) and McNally and Martin (1998) nevertheless show mentors to often focus on craft knowledge and their conferences with novice teachers to be marked by a lack of challenge and reflection. It is therefore concluded that mentors may benefit from explicit training to equip them with the skills needed to guide a novice teacher's professional development.

*Training Study 4: Mentors of Teachers-in-Training.* Given the need for support experienced by beginning teachers and the positive effects of induction and mentoring programs, Dutch teacher-training colleges have recently implemented the 'Independent Final Teaching Period' (IFTP) or so-called 'teacher-in-training apprenticeship' (in Dutch: LIO stage). The teacher-in-training is introduced to the pupils as a qualified teacher and teaches all lessons under normal constraints and pressures (Koetsier & Wubbels, 1995). The teachers-in-training are supervised or coached at a distance with the cooperating teachers occasionally attending the lessons of the teachers-in-training. In their examination of the IFTP, Koetsier, Wubbels, and Korthagen (1997) conclude that the cooperating teachers and teacher educators need to enlarge their knowledge of the relevant reflective skills and their capacity to promote the development of such skills among teachers-in-training. Unfortunately, very few cooperating teachers are actually trained to do this and the quality of the apprenticeship is often less than satisfactory (Sinclair, 1997). Training teachers to be mentors or coaches is therefore one possible means of enabling them to fulfil their responsibilities to student teachers during the IFTP.

*Training Study 5: Secondary School Teachers.* Research into teacher training effects has shown a frequent failure to transfer new knowledge and skills into actual classroom practice or, when initial transfer has been accomplished, rapid attrition of the newly acquired behaviours. This same research has shown transfer to often only occur when in-class coaching is added to the initial training experience (Joyce & Showers, 1995). Coaching for application within the context of in-service training or staff development is defined by Joyce and Showers (1980, p. 380) as: "Hands-on, in-classroom assistance with the transfer of skills and strategies to the classroom." Research shows that coached teachers tend to practice new instructional strategies more frequently than uncoached teachers and also develop greater skill in the application of the new strategies than uncoached teachers (Showers & Joyce, 1996). The addition of in-class coaching to the training experiences of teachers is thus needed to foster the transfer of newly trained skills.

## THE COACHING OF TEACHERS

The concept of coaching is closely related to the concept of clinical supervision. Coaching can help teachers improve their instructional effectiveness

by providing them with feedback on their functioning and stimulating them to be more reflective (cf. Pajak, 1993). The activities of the teacher in the classroom stand central, and the observational data collected in the classroom provide the grounds for the necessary analysis and reflection. For Costa and Garmston (1994), coaching is a form of conveyance or a metaphorical stagecoach taking teachers from where they are to where they want to be.

A recent development in the field of coaching is the notion of cognitive coaching (Costa & Garmston, 1994). The basic assumption underlying cognitive coaching is that the instructional behaviours of teachers cannot be modified until their internal thought processes have been altered. Costa and Garmston base their approach on research studies in which teaching is conceptualised as an intellectual, decision-making process with the visible skills of teaching driven by the 'invisible' mental activities that also comprise teaching (cf. Pajak, 1993). Reflection is considered necessary to bridge the gap between espoused theory and actual practice, between the intended outcomes of teaching and the outcomes actually attained. The typical sequence of steps engaged in by the coach and the teacher are: (1) a planning conference prior to observation in the classroom; (2) class observation of teaching behaviours and pupil learning; and (3) a reflection conference. According to Costa and Garmston (1994), cognitive coaching can positively influence self-confidence, classroom management skills, teaching styles, self-awareness and instructional dialogues with colleagues.

In our coaching program, coaching was defined as a form of in-class support to enhance teaching competence through systematic reflection on professional practice. The coaching is directed at strengthening the instructional competence of the teachers in question. This implies increased professional growth and autonomy or what is called empowerment. The coaching cycle (involving pre-conference, observation and post-conference) and the coaching skills are drawn from the models of clinical supervision and coaching developed by Goldhammer (1969), Cogan (1973), Goldhammer, Anderson, and Krajewski (1993), Joyce and Showers (1995) and Costa and Garmston (1994). During classroom observation, 'script taping' (or the recording of anecdotal notes on what is actually being said and done; cf. Hunter & Russell, 1990) is used to collect the data on the behaviours and learning targeted in the pre-conference. The coaches not only attend to overt teaching behaviours but also to the internal thought processes associated with specific teaching behaviours by encouraging the teachers to reflect on their teaching strategies and any implicit assumptions. In this respect, the coaching

employed in our training program departs from 'clinical' models of supervision and is closely related to the notion of cognitive coaching as defined by Costa and Garmston (1994). The coach also seeks to promote a rational analysis of teaching by asking teachers to reflect on their teaching at the level of technical competence (in which the coach is concerned about how best the teachers have accomplished a given educational goal) and interpretative understanding (in which the coach asks the teachers to make explicit the assumptions underlying their practical actions).

The choice of coaching skills for our training program was also inspired by the American in-service program *Another Set of Eyes* from the Association for Supervision and Curriculum Development (1988). This program is concentrated on four skills: trust building, questioning, responding and empowerment. Our training is concentrated on the following three objectives: (1) establishment of mutual trust; (2) improvement of instructional practice by providing feedback and stimulating teachers to be more reflective; and (3) enhancement of autonomy and self-actualisation by stimulating the development of self-improvement plans.

Following MacLennan (1995), a mentor in the training studies with beginning teachers and teachers-in-training is defined as an experienced teacher for the novice teacher to learn FROM and a coach is defined as an experienced teacher for the novice teacher to learn WITH. Mentoring generally precedes coaching and, during the mentoring stage, numerous survival concerns may be addressed as the novice teacher learns what is necessary to function effectively within the school organisation. During the coaching stage, the professional development of the novice teacher is addressed. The mentoring stage can also overlap with the coaching stage, and the mentor and coach roles can be fulfilled by one and the same person.

In closing, the development of our coaching program was also inspired by the positive effects of coaching on teachers' instructional skills, their collaborative interactions and their self-esteem. A review by Costa and Garmston (1994) shows that cognitive coaching can positively influence self-confidence, classroom management skills, teaching styles, self-awareness and instructional dialogues with colleagues. Sparks and Bruder (1987) implemented a coaching program to encourage teachers to experiment with new methods of teaching. Most of the teachers reported a greater likelihood of trying new teaching practices in their classrooms and greater collegiality among teachers. Also these teachers felt that their newly developed teaching techniques produced marked improvements in the academic skills and competencies of

their pupils. Studies by Showers (1982), Baker (1983) and Bennett (1987) have also shown coached teachers to transfer newly learned teaching strategies to classroom practice more often and use these strategies more appropriately than uncoached teachers. More recent studies by Kohler and Crilley (1997), Morgan and Menlove (1994), Morgan, Gustafson, Hudson, and Salzberg (1992), Licklider (1995), and Roelofs et al. (1994) show coached student teachers or in-service teachers to organise their instruction more effectively than uncoached teachers.

## RESEARCH QUESTIONS

The purpose of the present article is to present the findings of five training studies in which the effects of a coaching program for school counsellors, school principals, the mentors of beginning teachers, the mentors of teachers-in-training and secondary school teachers are evaluated. The major research questions were: (1) Do the coaches who participated in the training program actually implement the target coaching skills? and (2) Do the teachers coached by the coaches participating in the training program perceive a change in the coaching skills of their coaches?

## METHOD AND INSTRUMENTATION

### Design

Two different forms of evaluation were undertaken in the present study. First, the coaching skills of the trained and untrained coaches were rated by expert judges. Second, the coaching skills of the trained and untrained coaches were rated by the teachers being coached. The two forms of evaluation were undertaken using an untreated control group design with pre-test and post-test. The treatment group for the comprehensive data set consisted of 93 trained coaches (and 105 coached teachers) and the control group consisted of 66 untrained coaches (and 71 coached teachers). The number of subjects coming from the five training studies is as follows. *School counsellors*: treatment group  $n = 18$  (and 30 coached teachers), control group  $n = 10$  (and 16 coached teachers); *school principals*: treatment group  $n = 30$  (and 30 coached teachers), control group  $n = 24$  (and 23 coached teachers); *mentors of beginning teachers*: treatment group  $n = 15$  (and 15 beginning teachers),



control group  $n = 7$  (and 7 beginning teachers); *mentors of teachers-in-training*: treatment group  $n = 20$  (and 20 teachers-in-training), control group  $n = 15$  (and 15 teachers-in-training); and *secondary school teachers*: treatment group  $n = 10$  (and 10 coached teachers), control group  $n = 10$  (and 10 coached teachers) (Tables 1 and 2). Both the experimental and control groups in the five training studies consisted of school counsellors or teachers interested in coaching and were thus initially comparable.

## Subjects

### *School Counsellors*

A letter of invitation for participation in a training program devoted to the coaching of teachers was sent to all of the Educational Service Centres in the Netherlands and to one centre in Belgium (Flanders). Only those school counsellors with little or no coaching experience were invited to participate in the program. Of the school counsellors who wanted and were able to participate in the training program, 18 were randomly assigned to the experimental group and 10 to the control group.

The average amount of experience for the school counsellors was 8 years. The average age of the school counsellors was 35 years. Of the total group of school counsellors, 67% were women and 33% were men.

Some of the school counsellors conducted a coaching conference with two different teachers (one school counsellor with three different teachers). After completion of a coaching conference with the school counsellors, the coached teachers were asked to rate the performance of the school counsellors and estimate the effect of the coaching conference on their instructional behaviour. Of the teachers coached by the trained school counsellors, all of the teachers returned their questionnaire (response rate of 100%). Of the teachers coached by the untrained school counsellors, 16 returned their questionnaires (response rate of 80%).

The average amount of experience for the teachers coached by the school counsellors was 12 years. The average age of the teachers was 36 years. Of the total group of teachers, 70% were women and 30% were men.

### *School Principals*

In the training study with school principals, all of the participating principals were enrolled in an in-service training program for primary school principals. The coaching program was offered to the principals at the end of the 1st year

Table 1. Scale for Coaching Skills: Means, Standard Deviations and ANCOVA Results.

Participant samples	Developing Autonomy				Feedback				Business-like Attitude			
	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	<i>F</i>	<i>ES</i>	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	<i>F</i>	<i>ES</i>	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	<i>F</i>	<i>ES</i>
<i>School counsellors</i>			17.56*	1.36			7.59*	1.11			6.63*	1.03
Experimental group ( <i>n</i> = 18)	1.9 (.2)	3.0 (.8)			2.9 (1.2)	3.8 (1.5)			4.6 (.6)	4.9 (.3)		
Control group ( <i>n</i> = 10)	1.7 (.2)	1.8 (.5)			2.6 (1.3)	2.2 (1.2)			4.4 (1.1)	4.5 (.6)		
<i>School principals</i>			123.01*	2.88			42.47*	1.80			13.72*	.99
Experimental group ( <i>n</i> = 30)	1.9 (.5)	3.2 (.6)			2.2 (.7)	3.4 (.5)			3.0 (.6)	3.7 (.7)		
Control group ( <i>n</i> = 24)	2.0 (.5)	1.9 (.3)			2.2 (.8)	2.3 (.7)			2.5 (1.1)	2.8 (.9)		
<i>Mentors of beginning teachers</i>			47.36*	2.81			4.15	.90			96.51*	4.90
Experimental group ( <i>n</i> = 15)	2.0 (.3)	3.7 (.6)			1.4 (.8)	3.1 (1.4)			3.9 (1.1)	4.9 (.2)		
Control group ( <i>n</i> = 7)	1.9 (.5)	2.1 (.5)			1.8 (1.0)	2.2 (1.1)			3.1 (.7)	3.1 (.6)		
<i>Mentors of teachers-in-training</i>												
Experimental group ( <i>n</i> = 20)	2.0 (.7)	2.5 (.0)	4.88*	.73	2.4 (1.0)	3.2 (1.0)	5.89*	.85	4.8 (.5)	4.7 (.8)	0.02	-.05
Control group ( <i>n</i> = 15)	2.0 (.6)	1.9 (.8)			2.7 (.9)	2.4 (1.1)			4.5 (.9)	4.7 (.8)		
<i>Secondary school teachers</i>			31.05*	2.32			66.26*	3.74			16.50*	1.48
Experimental group ( <i>n</i> = 10)	2.4 (.6)	3.9 (.5)			1.1 (.2)	3.8 (.9)			3.6 (1.4)	4.6 (.5)		
Control group ( <i>n</i> = 10)	2.4 (.8)	2.5 (.7)			1.3 (.4)	1.3 (.3)			3.9 (1.2)	3.3 (1.3)		

Note. Pre = pre-test scores; post = post-test scores. Standard deviations are in parentheses. \* $p < .05$ .

Table 2. Teacher Scale for Coaching Skills: Means, Standard Deviations and ANCOVA Results.

Participant samples	Improvement of instruction				Use of Observational Data				Planning of Observational Data				Appreciation of the Coaching Skills			
	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	<i>F</i>	<i>ES</i>	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	<i>F</i>	<i>ES</i>	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	<i>F</i>	<i>ES</i>	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	<i>F</i>	<i>ES</i>
<i>School counsellors</i>			1.34	-.35			.12	-.11			.15	.00			.61	.24
Experimental group ( <i>n</i> = 30)	3.5 (.7)	3.6 (.5)			3.2 (1.3)	2.8 (1.3)			1.8 (1.0)	2.7 (.9)			3.4 (.9)	3.8 (.7)		
Control group ( <i>n</i> = 16)	3.6 (.6)	3.8 (.5)			2.4 (1.2)	2.8 (1.1)			1.8 (1.1)	2.6 (1.1)			3.5 (.6)	3.7 (.4)		
<i>School principals</i>			1.87	.33			5.08* <sup>a</sup>	.62 <sup>a</sup>			11.08*	.83			2.37	.37
Experimental group ( <i>n</i> = 30)	3.4 (.5)	3.8 (.5)			n.a.	3.4 (1.2)			1.6 (.8)	2.9 (1.0)			3.4 (.6)	3.8 (.6)		
Control group ( <i>n</i> = 23)	3.5 (.4)	3.7 (.3)				2.6 (1.3)			1.8 (.9)	2.2 (.8)			3.4 (.5)	3.6 (.5)		
<i>Mentors of beginning teachers</i>			.01	.16			.09	.14			.20	-.21			.15	.19
Experimental group ( <i>n</i> = 15)	3.7 (.6)	4.2 (.6)			2.1 (1.5)	3.7 (1.5)			1.7 (.6)	3.1 (1.3)			3.7 (.7)	4.1 (.8)		
Control group ( <i>n</i> = 7)	3.1 (.6)	3.9 (.8)			2.0 (1.1)	3.4 (1.4)			1.3 (.5)	3.1 (1.7)			2.9 (.8)	3.8 (1.0)		
<i>Mentors of teachers-in-training</i>			.99	-.34			5.14	-.79			2.54	-.55			.34	.17
Experimental group ( <i>n</i> = 20)	3.2 (.5)	3.7 (.3)			1.7 (1.3)	2.9 (1.5)			1.7 (.8)	2.6 (.9)			3.3 (.7)	3.6 (.5)		
Control group ( <i>n</i> = 15)	3.7 (.6)	4.0 (.5)			1.9 (1.2)	3.9 (1.0)			2.0 (.8)	3.4 (1.5)			3.5 (.7)	3.6 (1.0)		
<i>Secondary school teachers</i>			13.06*	1.37			5.44* <sup>a</sup>	1.04 <sup>a</sup>			9.26*	1.62			27.41*	.93
Experimental group ( <i>n</i> = 10)	2.8 (.5)	3.7 (.6)			n.a.	2.1 (1.4)			2.2 (1.1)	3.0 (1.1)			3.0 (.7)	3.7 (.5)		
Control group ( <i>n</i> = 10)	2.6 (.6)	2.6 (.7)				1.0 (.0)			1.2 (.3)	1.3 (.3)			2.4 (.9)	2.5 (.7)		

*Note.* Pre = pre-test scores; post = post-test scores. Standard deviations are in parentheses. \**p* < .05. <sup>a</sup>ANOVA results and effect-size based on post-test scores only; n.a. = data not available.

as one of two elective practical assignments (study load of approximately 40 hours). Of the 7 training sites, 4 were randomly assigned to the experimental group ( $n = 30$ ) and 3 to the control group ( $n = 24$ ).

The average amount of experience for the school principals was 5.3 years. The average age of the school principals was 40 years. Of the entire group of school principals, 19% were women and 81% were men.

All of the teachers coached by the trained school principals returned their questionnaire (response rate of 100%). Of the teachers coached by the untrained school principals, 23 returned their questionnaires (response rate of 96%).

The average amount of experience for the teachers coached by the school principals was 10 years. The average age of the teachers was 36 years. Of the entire group of teachers, 72% were women and 28% were men.

#### *Mentors of Beginning Teachers*

For this training, letters of invitation were sent by four Educational Service Centres to the primary schools in their regions. Of the 22 mentors who agreed to participate, 15 were randomly assigned to the experimental group and 7 to the control group. All of the coached beginning teachers returned their questionnaire (response rate of 100%).

The average amount of experience for the mentors in the two groups was about 17 years. Of the entire group of mentors, 10 were women and 12 were men; the associated group of beginning teachers consisted of 18 women and 4 men.

#### *Mentors of Teachers-in-Training*

For this training, letters of invitation were sent by the Christian Pedagogical Study Centre (CPS), the North Netherlands College of Higher Professional Education (CHN) and the Educational Service Centre in Groningen (RGAB) to the primary schools in their regions. A total of 35 experienced teachers were willing to participate in the training program: 20 of these 35 teachers were offered a full version of the training program (i.e., study of the training manual, two 1-day workshops, and the conduct and taping of a coaching conference both before and after the training program); the other 15 experienced teachers were offered a limited version of the training program (i.e., conduct and taping of a coaching conference at two points equivalent to the pre- and post-test points for the experimental group receiving the full training program, no workshops and only study or use of the training manual

after the teachers participating in the full version of the coaching program had completed the last workshop). The first group of teachers formed the experimental group or the group of cooperating teachers trained on coaching skills; the second group of teachers formed the control group or the group of cooperating teachers not trained on coaching skills. Both the experimental and control groups consisted of cooperating teachers interested in coaching and were thus initially comparable in this respect. All of the coached teachers-in-training returned their questionnaire (response rate of 100%).

The average amount of teaching experience reported by the mentors in the two groups was 18 years. Both groups had 13 years of experience in mentoring student teachers. The average age of the mentors was 43 years. Of the entire group of mentors, 18 were women and 17 were men.

### *Secondary School Teachers*

The coaching program for this group of participants was incorporated into a more comprehensive school improvement program concerned with the changing instructional role of the teacher in light of current conceptions of learning as a more active, constructive and self-regulated process (cf. Shuell, 1996). The management team from this particular school assumed coaching could encourage teachers to transfer and apply newly acquired skills directed at helping pupils to increase their self-study skills. Ten teachers from the lower grades of this secondary school located in the south of the Netherlands volunteered to participate in the training program on coaching skills. Ten teachers from the lower grades of a secondary school located in the east of the country volunteered to participate as control teachers (and intended to follow the training program in the near future). All of the coached secondary teachers returned their questionnaire (response rate of 100%). The two schools were comparable in terms of size and enrolment.

The average amount of teaching experience for the secondary school teachers was 17.3 years. The average age of the teachers was 43 years. There were 10 female and 10 male secondary teachers.

### **The Training Program**

The training manual accompanying the coaching program consisted of four broad sections. The content of the *first section* differed depending on the target group. For school counsellors, school principals and secondary school teachers, the contribution of coaching to the improvement of instructional effectiveness is discussed in the context of the school as a learning organisa-

tion. Information is provided on the functions of coaching and the skills needed by both the coaches and the teachers. Those acting as coaches are instructed to encourage teachers to reflect on possible discrepancies between their desired and actual teaching behaviour and the relations between teacher behaviour and pupil achievement. For the mentors of beginning teachers, the main problems confronting beginning teachers, the tasks of the teacher, the first job, classroom management problems, early concerns about survival and reality shock are discussed. For the mentors of teachers-in-training, the teacher-in-training apprenticeship is discussed along with five dimensions of professional teaching: subject-matter expertise, didactic expertise, pedagogical expertise, school organisational expertise and reflective expertise. In addition, the starting competence of the teachers-in-training and the partnership between the teacher education colleges and the schools are discussed. Finally, the contribution of coaching to improve instructional effectiveness and further professional development is addressed.

In *section two*, a distinction is made between two forms of coaching: consulting and confronting. Conferences initiated by the teacher represent the consulting function. These conferences are directed at strengthening the instructional competence of the teachers, at professional growth and at empowerment when the teacher expresses an interest in further instructional improvement. Consulting supplements the teacher's own initiative towards self-improvement. Conferences initiated by the coach represent the confronting function. In this situation, the coach wants a particular instructional task to be performed at a satisfactory level. During the confrontational conference, the coach concretely identifies the specific performance problem and the desired improvement. The functions of mentoring and coaching are also discussed in this section of the manual for the mentors of beginning teachers and teachers-in-training. Mentoring is described as 'putting-in' and coaching is described as 'pulling-out' (MacLennan, 1995). It is also observed that input from the mentor is most needed during the early stages of teaching and least needed as the beginning teacher becomes more autonomous. As the beginning teacher becomes more independent, coaching can be used to further enhance the teacher's reflective skills and problem-solving capacities.

In *section three*, which is the most important part of the manual, the different stages in the coaching cycle are described: pre-conference, observation and post-conference. The coaching skills for the pre-conference are first discussed; these include such skills as trust building, problem definition, problem solving, planning alternatives and the formulation of action plans for

improvement. Teacher observation (script taping) is discussed next; this involves making a written record of what is said and done during a class session. Finally, a number of post-conference coaching skills are discussed; these include probing the teacher's feelings about the lesson, evaluation of the improvement outcomes, discussion of the observational data (reflection and feedback), development of new alternatives and refinement of improvement plans. The coaches are also advised to invite teachers to provide feedback and possible suggestions for a more productive coaching relationship.

In *section four* of the training manual, a number of the problems associated with the introduction of coaching as a means for instructional improvement are discussed. Some suggestions for the implementation of coaching are also provided. In addition, in this section of the manual for the training of the mentors of beginning teachers, a number of problems associated with classroom management are also discussed. For the teachers-in-training, some guidelines for the evaluation of the teaching practicum are provided.

The contents of the training manual provided the basis for a 1-day workshop for school counsellors and school principals; two 1-day workshops for the mentors of beginning teachers and teachers-in-training; and five half-day workshops for secondary school teachers. The training was less intense for school counsellors and school principals as they are already familiar with the conduct of supervisory conferences with teachers. Prior to the workshops, the manual was sent to the prospective coaches with the request that they study at least section three on pre-conference, observation and post-conference. During the workshops, the prospective coaches were trained on the skills relevant to pre-conference, observation and post-conference. During the application exercises, the participants formed groups of three and alternated being the coach, teacher and observer. After each exercise, the prospective coaches designed action plans for their own coaching practice. Exercises in 'script taping' were based on teaching video fragments. The prospective coaches rated the training manual and workshops quite favourably and indicated that they planned to apply the newly learned coaching skills in the near future.

### **The Scale for Coaching Skills**

The Scale for Coaching Skills (SCS) was developed to gather information on the manner in which coaches use target coaching skills. The content of the items was deduced from the objectives of the training program: establishment of mutual trust; improvement of instructional practice by providing feedback

and stimulating teachers to be more reflective; and enhancement of autonomy and self-actualisation by stimulating the development of self-improvement plans. These objectives were mainly based on Costa and Garmston's (1994) cognitive coaching model. In addition, a small number of items was derived from the 'Snyder-Pavan Clinical Supervision Practices Questionnaire' (Pavan, 1993).

The SCS contains 33 items to be rated along a 5-point Likert scale ranging from 1 for no application of the coaching skill to 5 for clear application of the coaching skill. In each training study, the taped coaching conferences were coded by two trained raters using the SCS. All of the raters used the same training guidelines to guarantee uniform coding of the tapes. The inter-rater reliability checks using Cohen's Kappa (1960) for the training study with school counsellors were found to range from .63 to 1.00 (median .85,  $M = .86$ ,  $SD = .13$ ). Analysis of variance was used in the other four training studies to estimate the inter-rater reliability checks (intraclass correlation; cf. Winer, 1971). In the study with school principals, the inter-rater reliability coefficients ranged from .50 to 1.00 (median .91,  $M = .88$ ,  $SD = .11$ ); in the study with the mentors of beginning teachers, the coefficients ranged from .67 to 1.00 (median .97,  $M = .92$ ,  $SD = .09$ ); in the study with the mentors of teachers-in-training, the coefficients ranged from .66 to .99 (median .85,  $M = .84$ ,  $SD = .10$ ); and in the study with secondary school teachers, the coefficients ranged from .82 to 1.00 (median 1.00,  $M = .99$ ,  $SD = .04$ ).

The data from the five training studies were combined into a single comprehensive data set. Using SPSS, a principal components analysis with eigenvalues greater than 1.0 for the extracted factors was used to identify the underlying components or factors of the SCS scale. Various solutions were evaluated, and a three-factor solution was deemed most interpretable with the three factors together accounting for 62% of the variance in the SCS ratings. The principal components analysis yielded the following eigenvalues: 15.7, 2.7 and 2.1. Although the eigenvalues for the second and third factors were small, the items constituting these factors were qualitatively different from those constituting the first factor; the second and third factors were therefore retained in the current study.

Twenty-four items stood out for factor one, which accounted for 47.6% of the variance in the SCS scores. The scores for these items yielded an internal-consistency reliability (Cronbach's alpha) estimate of .95. The factor loadings for these items ranged from .51 to .88. The content of the items related to enabling teachers to reflect on their instructional practices (e.g., Item 12: 'The



coach stimulates the teacher him/herself to formulate alternatives for improving his or her instructional behaviour') and enabling teachers to improve their instructional practice with the formulation of personal action plans (e.g., Item 19: 'The coach and the teacher formulate an action plan together'). This factor or scale was therefore called *Developing Autonomy* (empowerment).

Seven items stood out for factor two, which accounted for 5.5% of the variance in the SCS scores. The scores for these seven items yielded an internal-consistency reliability estimate of .89. The factor loadings ranged from .43 to .68. The item content related to the provision of feedback based on classroom observational data (e.g., Item 25: 'The coach gives the teacher feedback with the aid of the observational data collected' and Item 28: 'The coach provides constructive feedback'). This factor or scale was therefore labelled *Feedback*.

Two items stood out for factor three, which accounted for 4.1% of the variance in the SCS scores. The scores for these two items yielded an internal-consistency reliability estimate of .87. The factor loadings for these items were .45 and .37. This factor was retained because the items reflect the readiness of the coach and the teacher to focus on the purpose of the coaching conference, namely the development of alternatives to improve instructional effectiveness (e.g., Item 5: 'The coach sees that the teacher stays on task' and Item 6: 'The coach him/herself stays on task during the consultation'). This factor or scale was therefore labelled *Business-like Attitude*.

### The Teacher Scale for Coaching Skills

In order for the teachers to evaluate the coaching skills of their coaches, the coached teachers used the Teacher Scale for Coaching Skills (TSCS). The items on this scale were also deduced from the objectives of the training program but, in contrast to the SCS, the accent of the TSCS is more on the mutual development of concrete action plans for the improvement of instruction, shared decision making, the planning and use of observational data, and the conduct of coaching conferences. The TSCS contains 40 items rated along a scale ranging from 1 for no application of the skill to 5 for clear application of the skill.

The TSCS scores from the five training studies were also combined into a single comprehensive data set. Principal components analysis of the TSCS scores revealed four factors accounting for 60% of the variance in the TSCS ratings. The principal components analysis yielded the following eigenvalues: 16.8, 3.7, 1.8, and 1.7. Although the eigenvalues for the third and fourth

factors were small, the items constituting these factors were qualitatively different from those constituting the first two factors; the third and fourth factors were thus retained.

Twenty-six items stood out for factor one, which accounted for 41.2% of the variance in the TSCS scores. The scores for these items yielded an internal-consistency reliability estimate of .95. The factor loadings ranged from .52 to .84. The content of the items related to the framing of self-plans for instructional improvement (e.g., Item 20: 'The coach helped me formulate an improvement plan for my teaching behaviour'), encouragement of self-reflection (e.g., Item 15: 'The coach asked me to think about the consequences of improving my teaching behaviour for the pupils'), and the perceived effects of self-analysis on instructional practice (e.g., Item 21: 'At the end of the consultation, I had a clear image of what I could do in the following period to improve my teaching behaviour'). This factor or scale was therefore labelled 'improvement of instruction through self-reflection and defining action-plans' and abbreviated as *Improvement of Instruction*.

Five items stood out for factor two, which accounted for 9.3% of the variance in the TSCS scores. The scores for these five items yielded an internal-consistency reliability estimate of .97. The factor loadings ranged from .67 to .76. The content of the items related to the use of observational data to improve instruction (e.g., Item 33: 'The coach made those components of the improvement plan which I had either realised or not realised clear to me using the observational data'). This factor or scale was thus labelled *Use of Observational Data*.

Four items stood out for factor three, which accounted for 4.5% of the variance in the TSCS scores. The scores for these four items yielded an internal-consistency reliability estimate of .78. The factor loadings ranged from .32 to .62. This factor was retained because the items reflect the planning of the classroom observation (e.g., Item 27: 'Clear agreements have been made about the content of the data which the coach will be collecting during the lesson'). This factor or scale was thus labelled *Planning of Observational Data*.

Five items stood out for factor four, which accounted for 4.1% of the variance. The scores for these five items yielded an internal-consistency reliability estimate of .74. The factor loadings ranged from .20 to .37. This factor was retained because the items reflect the coached teacher's appreciation of the coaching skills being demonstrated (e.g., Item 8: 'In order to facilitate mutual understanding, the coach summarised the primary points of

discussion'). This factor or scale was thus labelled *Appreciation of the Coaching Skills*.

### Data Collection

Prior to training, the prospective coaches conducted a coaching conference with one of the (novice or future) teachers from their schools. The coaches were asked to conduct this conference in a manner similar to the conferences, which they usually perform. After completion of the training, the trained and untrained coaches were again asked to conduct a coaching conference with the same teacher or teachers. For the school counsellors the pre-test, workshop on coaching skills and post-test were conducted at the end of 1993 and beginning of 1994. The training study for school principals took place in the spring of 1995; the training study for the mentors of beginning teachers was conducted in the spring of 1997; the training study with the mentors of teachers-in-training was conducted in the spring of 1998; and the training study with secondary school teachers was conducted at the beginning of 1999.

All of the coaching conferences were audiotaped by the coaches, and the tapes were then sent to the expert raters for coding. The tapes from the pre- and post-tests and from the experimental and control groups were randomly assigned to the raters. After each coaching conference, the teachers also rated the skills of their coaches and were asked to estimate the effects of the coaching conference on their own instructional behaviour. The coaches did not have access to the teacher ratings. For those school counsellors who conducted a coaching conference with more than one teacher, one conference was randomly selected to provide a pre-test and a post-test TSCS score for each coach. In the training studies with school leaders and secondary school teachers, no data were collected for the TSCS scale Use of Observational Data. In these two studies, only the items pertaining to the use of observational data at post-test were used because it was assumed that the trained coaches would only make use of observational data after receipt of complete training. As a result, no pre-test data for the TSCS scale was available (indicated in Table 2 as "not available"). In the other training studies, however, pre-test data for this scale were available.

### Data Analysis

First, ANOVA analyses were used to test for initial differences between the trained and untrained groups within each study. Second, analyses of covariance (ANCOVA) were used to examine the differences between the pre-test

and post-test data for the trained and untrained groups in each study (with initial pre-test scores as covariates). The same procedure was followed for both the SCS and TSCS scores. Third, the effect sizes were computed for each study by dividing the difference between the adjusted mean post-test scores for the untrained versus the trained groups by the pooled standard deviations of the scores for the trained and untrained groups at post-test (see Olejnik & Algina, 2000). Finally, ANOVA analyses were used to test for significant differences between the training studies and to investigate whether specific training contexts might have differential effects on the coaching skills. A significance level of 5% was used in all of the statistical tests (one-tailed for the assessment of coaching effects). The coach and the coached (novice) teacher constituted the unit of analysis.

## RESULTS

Comparison of the SCS scores for the trained versus untrained groups in the samples involved in each of the studies revealed no initial differences ( $p > .05$ ). ANCOVA was used to examine the post-test scores for the trained versus untrained groups. A summary of the SCS scores for the samples involved in each of the studies and the results of the tests are presented in Table 1. Effect sizes (*ESs*) are also included.

The data displayed in Table 1 show training to have a marked effect on coaching skills. Significant differences between the trained versus untrained groups in all samples were found for the SCS scale Developing Autonomy ( $p < .05$ ). The *ESs* for the five samples were 1.36, 2.88, 2.81, .73 and 2.32 standard deviations, respectively.

Significant differences between the trained and untrained groups were also found for the samples with the school counsellors, school principals, mentors of teachers-in-training and secondary school teachers on the SCS scale Feedback ( $p < .05$ ). The *ESs* for these samples were 1.11, 1.80, .85 and 3.74, respectively. No significant difference on the SCS scale Feedback between the trained and untrained groups was found for the mentors of beginning teachers, probably due to the small number of teachers in this sample. The effect size nevertheless showed a large effect in favour of the trained group ( $ES = .90$ ).

For the SCS scale Business-like Attitude, significant differences between the trained and untrained groups were found in the samples with school

counsellors, school principals, mentors of beginning teachers and secondary school teachers ( $p < .05$ ). The  $ES$ s for these samples were 1.03, .99, 4.90 and 1.48, respectively. No significant treatment effect was found for the mentors of teachers-in-training on this SCS scale ( $ES = -.05$ ).

To examine the possible role of some background characteristics in the observed differences, supplementary analyses of variance were undertaken using the following three background variables: (1) years of teaching experience (in the case of the school counsellors: number of years working as a school counsellor), (2) feelings of competence in the conduct of coaching conferences, and (3) gender. No significant effects of these background variables on the SCS scores were found.

Comparison of the trained groups with the untrained groups for initial differences in the TSCS scores revealed no significant differences for the samples of school counsellors and school principals. However, initial differences were found for the mentors of beginning teachers, the mentors of teachers-in-training and the secondary school teachers. For the mentors of beginning teachers, significant initial differences were found on the scales Improvement of Instruction and Appreciation of the Coaching Skills; for both scales, the mentors in the treatment group were initially rated higher by the beginning teachers than the mentors in the control group. For the mentors of teachers-in-training, significant initial differences were found for Improvement of Instruction; the mentors in the control group were initially rated higher by the teachers-in-training than the mentors in the treatment group. For the secondary school teachers, significant initial differences were found for the Planning of Observational Data; the coaches in the treatment group were rated higher by the teachers on this scale than the coaches in the control group. These initial differences should therefore be kept in mind when interpreting the TSCS results. A summary of the TSCS scores provided by the coached teachers and the ANCOVA results are presented in Table 2. The effect sizes are also included.

For the TSCS scale Improvement of Instruction, a significant treatment effect was only found for the sample of secondary school teachers ( $p < .05$ ;  $ES = 1.37$ ). The effect sizes for the samples of school principals and mentors of beginning teachers nevertheless showed moderate effects in favour of the trained groups ( $ES$ s = .33 and .16, respectively). For the samples of school counsellors and mentors of beginning teachers, no significant treatment effects were found ( $ES$ s =  $-.35$  and  $-.34$ , respectively).

For the TSCS scale Use of Observational Data, significant treatment effects were found for the samples of school principals and secondary school teachers

( $p < .05$ ;  $ES$ s based on post-test scores = .62 and 1.04, respectively). The effect size for the sample of mentors of beginning teachers showed a small effect in favour of the trained group ( $ES = .14$ ). No treatment effects were found for the school counsellors ( $ES = -.11$ ) or the mentors of teachers-in-training ( $ES = -.79$ ).

For the TSCS scale Planning of Observational Data, significant treatment effects were also found for the samples of school principals and secondary school teachers ( $p < .05$ ). The  $ES$ s for these samples were .83 and 1.62, respectively. No treatment effects were found for the samples with school counsellors ( $ES = .00$ ), mentors of beginning teachers ( $ES = -.21$ ) or mentors of teachers-in-training ( $ES = -.55$ ).

For the TSCS scale Appreciation of the Coaching Skills demonstrated by the coaches, significant treatment effects were only found for the sample of secondary school teachers ( $p < .05$ ;  $ES = .93$ ). The effect sizes for the samples of school counsellors, school principals, mentors of beginning teachers, and mentors of teachers-in-training nevertheless showed moderate effects in favour of the trained groups ( $ES$ s = .24, .37, .19, and .17, respectively).

Supplementary analyses of variance were also conducted on the data from the coached teachers. No significant effects of the background variables (years of teaching experience on the part of the coaches, feelings of competence in the conduct of coaching conferences on the part of the coaches, or gender of the coached teachers) on the TSCS scores were found.

Finally, the differences *between* the five training studies with respect to the SCS and TSCS scores for the trained versus untrained groups were examined. For the SCS scores, significant interaction-effects of adjusted post-test group differences were found for the scales Feedback ( $F(4, 148) = 2.69, p < .05$ ) and Business-like Attitude ( $F(4, 148) = 6.25, p < .05$ ). These differences imply that the training effects differed for the samples under study. The interaction for Feedback is plotted in Figure 1, which shows the differences in the post-test scores for all of the samples to be in favour of the trained groups and that the largest post-test differences were found for the sample of the secondary school teachers. No overall differences were found between the training studies ( $F(4, 148) = .24, p > .05$ ). The interaction for Business-like Attitude is plotted in Figure 2, which shows the largest post-test differences to be found for the samples with mentors of beginning teachers and secondary school teachers. The adjusted mean differences at post-test were all in favour of the trained groups, with the exception of the mentors of teachers-in-training.

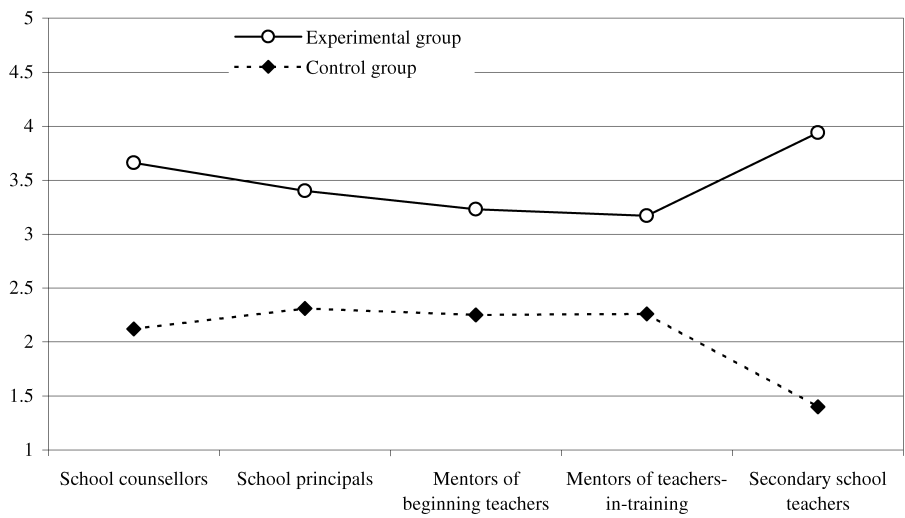


Fig. 1. Adjusted mean post-test scores on Feedback for the experimental and control groups from the five training studies.

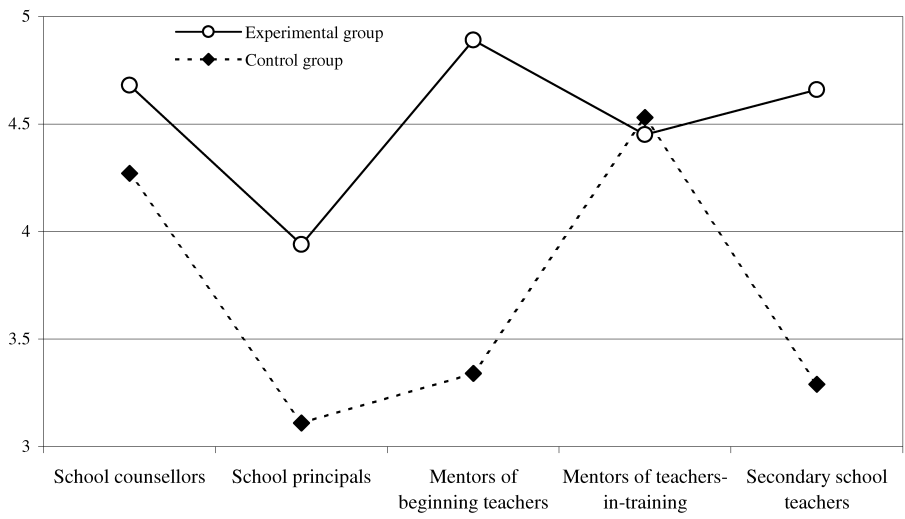


Fig. 2. Adjusted mean post-test scores on Business-like Attitude for the experimental and control groups from the five training studies.

For Developing Autonomy, no interaction involving post-test group differences was found across the samples ( $F(4, 148) = 2.43, p > .05$ ). However, some basic differences between the five samples were found ( $F(4, 148) = 7.50, p < .05$ ). For the Developing Autonomy scale, the highest adjusted mean post-test scores were found for the trained mentors of beginning teachers and the trained coaches of secondary school teachers (3.75 and 3.72, respectively), the lowest adjusted mean post-test scores were found for the trained group of mentors of teachers-in-training (2.54). Across the five samples, in sum, the post-test differences were in favour of the treatment groups ( $F(1, 148) = 133.83, p < .05$ ).

For post-test TSCS scores, significant interaction effects were found for the scales Improvement of Instruction ( $F(4, 165) = 6.17, p < .05$ ), Use of Observational Data ( $F(4, 165) = 3.43, p < .05$ ), and Planning of Observational Data ( $F(4, 165) = 4.04, p < .05$ ). The interaction for Improvement of Instruction is plotted in Figure 3. This figure shows that the differences in post-test scores for the sample with secondary school teachers were clearly in favour of the trained group. For the other four samples, the differences between the adjusted mean post-test scores were relatively small and not always in favour of the treatment groups. The interaction for Use of Observational Data is plotted in

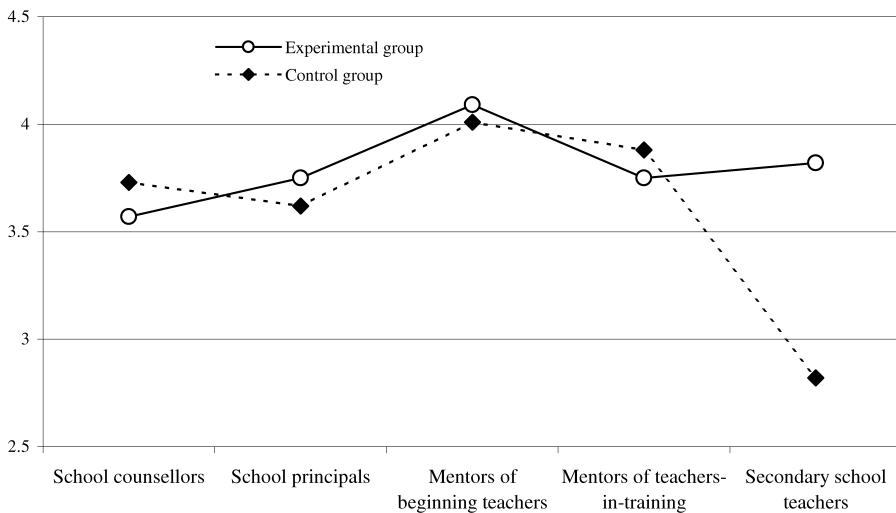


Fig. 3. Adjusted mean post-test scores on Improvement of Instruction for the experimental and control groups from the five training studies.



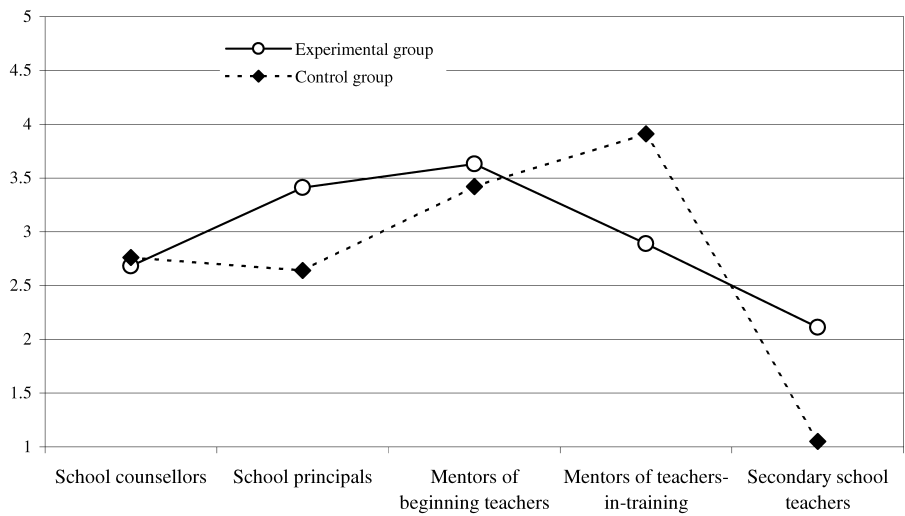


Fig. 4. Adjusted mean post-test scores on Use of Observational Data for the experimental and control groups from the five training studies.

Figure 4. This figure shows the differences in the post-test scores for the samples with secondary school teachers and school principals to again favour the trained groups while the differences for the sample of teachers-in-training were in favour of the untrained group. The interaction for Planning of Observational Data is plotted in Figure 5. This figure shows the same picture as for Use of Observational Data. With regard to the scale Appreciation of the Coaching Skills, no interaction was found ( $F(4, 165) = 2.16, p > .05$ ). Differences between groups and between samples were found (between groups:  $F(1, 165) = 9.63, p < .05$ ; between samples:  $F(4, 165) = 2.86, p < .05$ ). For all of the samples, the effects were in favour of the trained groups. The highest adjusted mean post-test scores were found for the trained mentors of beginning teachers (3.98); the lowest adjusted mean post-test scores were found for the trained mentors of teachers-in-training (3.59).

DISCUSSION

The results of the present study suggest that the training program positively affects the coaching skills of prospective coaches. Overall, the trained coaches

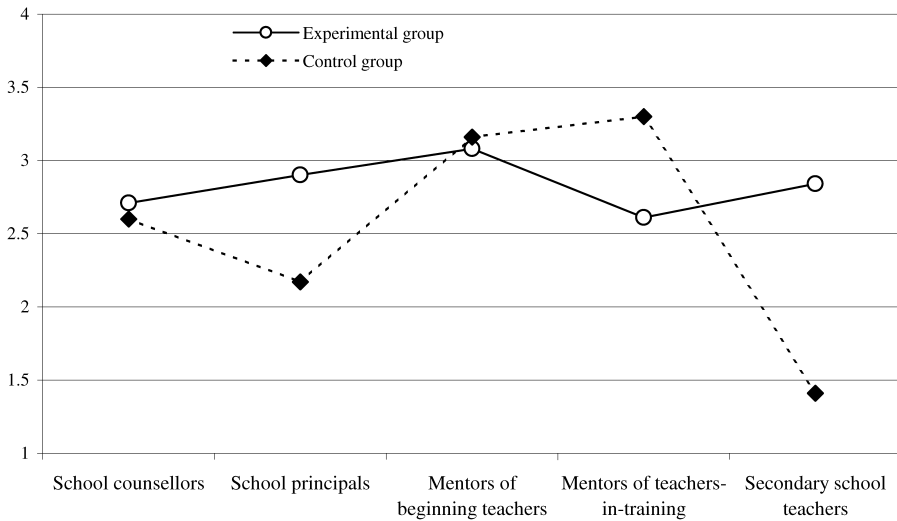


Fig. 5. Adjusted mean post-test scores on Planning of Observational Data for the experimental and control groups from the five training studies.

were rated higher than the untrained coaches by the expert raters on the Scale for Coaching Skills (SCS). Significant differences were found between the trained and untrained coaches in the samples of school counsellors, school principals and secondary school teachers on all three of the SCS scales: Developing Autonomy, Feedback and Business-like Attitude. In the samples with mentors of beginning teachers significant treatment effects were found for the two SCS scales of Developing Autonomy and Business-like Attitude; for the mentors of teachers-in-training, significant treatment effects were found for Developing Autonomy and Feedback.

The training program was found to particularly improve the coaching skills aimed at the development of autonomy. Developing autonomy (or empowerment) pertains in the present study to strengthening the autonomy of teachers and thereby their ability to reflect on their instructional effectiveness and formulate action plans to improve their teaching. A study by Marks and Seashore Louis (1997) shows that empowerment (defined as increased teacher decision-making authority and accountability for the domains of school operations and management, pupils' school experiences, teachers' work life and control over classroom instruction) can positively influence teachers' efforts to improve instruction, their belief that pupil achievement is largely a

result of their own teaching effort, and their propensity to exchange information among themselves about the effectiveness of their teaching.

Treatment effects were also found for the provision of feedback. This is an important skill for post-conference in particular. Feedback can be provided as part of the analysis of observational data and used to produce a self-plan for instructional improvement. Feedback also gives teachers the opportunity to adjust their performance through 'reflection-on-action' (Schön, 1983). The key characteristics of effective feedback are that it be timely, sufficient, concrete, specific and limited to a small number of performance problems. The trained coaches were judged to have better feedback skills than the untrained coaches. For only the mentors of beginning teachers, no significant effect of feedback was found although the trained mentors of beginning teachers clearly improved more than the untrained mentors ( $ES = .90$ ). The large effect size for the scale Feedback in the sample with the secondary school teachers is due to the fact that at pre-test most of the teachers in both the trained and untrained groups did not provide concrete feedback based on classroom observations. At post-test, the coaches in the trained group provided feedback on classroom observation while the coaches in the untrained group still did not.

A significant effect of the training program on the adoption of a business-like attitude was also found. This indicates a greater willingness on the part of the trained coaches and teachers to focus on the purpose of the coaching conference – namely, the development of alternatives for the improvement of instructional effectiveness. The trained coaches focused significantly more on the purpose of the coaching conference than the untrained coaches. For only the mentors of teachers-in-training, no significant treatment effect for the adoption of a business-like attitude during conferences was found. This is probably due to the two groups of mentors scoring high at pre-test. Some important characteristics of the mentoring relationship are frequent and regular face-to-face meetings; jointly agreed-upon procedures and agendas; and regular observation of the novice teacher by the mentor (Bolam, McMahon, Pocklington, & Weindling, 1996). Mentors typically discuss different means to enhance the instructional effectiveness of teaching with their teachers-in-training. Given the long standing daily relationship between mentors and prospective teachers, moreover, the mentors of teachers-in-training may have developed a more goal-oriented attitude than school counsellors, the mentors of beginning teachers and the coaches of secondary school teachers (or those who have less intense and frequent contact with

teachers). The pre-test SCS scores for a business-like attitude also show school principals to be very goal-directed when it comes to the improvement of teacher instruction.

Significant differences on the TSCS scale Improvement of Instruction were found for the teachers with trained versus untrained coaches in the sample with secondary school teachers. Although no significant treatment effects were found in the samples with school principals and mentors-of-beginning teachers, the effect sizes (ranging from .16 to .33) suggest greater opportunities for trained coaches to improve instruction than for untrained coaches. In the samples with school counsellors and mentors of teachers-in-training, no treatment effects were found with regard to the Improvement of Instruction. In general, the above average ratings at pre-test for Improvement of Instruction in the samples of school counsellors, school principals, mentors of beginning teachers and mentors of teachers-in-training were difficult to improve upon, which means that the possibility of a ceiling effect for this scale cannot be excluded.

Significant treatment effects for the TSCS scales Use of Observational Data and Planning of Observational Data were found for the samples of school principals and secondary school teachers. It should be noted, however, that the findings regarding Use of Observational Data were based on post-test scores alone. The large treatment effects in the sample with secondary school teachers for Use of Observational Data ( $ES = 1.04$ ) and for Planning of Observational Data ( $ES = 1.62$ ) are obviously due to the fact that all or almost all of the coaches in the control group did not include observational classroom data in their coaching conferences at post-test (also see the small  $SDs$ ). The difference between the treatment and control groups can clearly be regarded as an effect of the training program.

The generally positive ratings of the skills of their coaches show the coached teachers to experience coaching as something positive. The coached teachers provided both high pre- and post-test ratings for the TSCS scale Appreciation of the Coaching Skills which suggests that teachers generally perceive coaching conferences as both worthwhile and important for the improvement of their instructional practice. The trained coaches were rated higher on this scale than the untrained coaches; the effect sizes for this scale ranged from .17 to .93.

Inspection of the plots showing any interaction effects for the adjusted post-test scores reveals different training effects for the five samples under study. The largest treatment effects were found for the sample with secondary school

teachers. A possible explanation for this finding is that prior to the start of the coaching program, the trainers who conducted the coaching program frequently met with the management team of this school to tailor the training to the specific needs of the school, the prospective coaches and the coached teachers. The trainers were informed of the school improvement plans and also discussed the role of coaching in the educational change process with the management team. In addition, the trainers were also involved in a staff development program for helping teachers to increase pupils' self-study skills. In such a manner, the trainers may have provided additional 'on-line' assistance for the prospective coaches and – as Joyce and Showers (1995) argue – when extensive coaching is attached to training or staff development, most of the teachers will learn to use the skills which they are trying to master.

The smallest treatment effects were found for the mentors of teachers-in-training. As said before, one of the characteristics of the Independent Final Teaching Period (IFTP) is that the teachers-in-training function as regular teachers fully responsible for their classes during a large number of weeks during their last year of training. They are supervised at a distance by cooperating teachers or mentors, which means that their mentors usually do not attend their lessons. Such supervision may include coaching at the workplace but can also include responding to and reflecting on journals or portfolios, coordinating peer discussion groups, acting as a support when needed, providing instructional and psychological support by means of regular meetings between cooperating teachers and the teachers-in-training, discussing critical classroom incidents, exchanging experiences and providing support through computer networks (Gold, 1996). During implementing the IFTP, the mentors of teachers-in-training may have used other forms of supervision in addition to direct coaching to support teachers-in-training.

In the present study, the effects of a training program directed at the coaching of school counsellors, school principals, the mentors of future and novice teachers, and secondary school teachers were examined. The trained coaches were found to put a number of important and desirable coaching skills into practice. Whether these coaching skills actually bring about changes in the cognitive processes and instructional behaviours of the teachers and subsequently enhance pupil learning remains to be considered in future research. At this moment, coaching studies have not examined both teacher change and pupil learning outcomes within the same framework (Kohler & Crilley, 1997). The simultaneous assessment of such outcome variables is

therefore both welcome and necessary to provide a thorough evaluation of coaching programs for teachers.

In closing, a number of potential limitations on the present study should be mentioned. First, data on the coaching skills of coaches and also the perceptions of the teachers being coached were collected immediately before and after the training of coaching skills, which possibly limits the generalizability of the present findings. In future studies, collection of data on multiple occasions may provide important information on the coaching practices of school counsellors, school principals, the mentors of beginning teachers, the mentors of teachers-in-training and coaches involved in secondary education and school improvement. Such studies may also make it easier to interpret the long-term effects of training in changes in the cognitive processes and instructional behaviours of teachers.

A second limitation, may be the fact that the short-term effects of a training program for coaching skills were examined separate from the educational contexts in which the training was done. The structure of the coaching conferences and the relations between the coaches and teachers probably differ according to the context in which the school counsellors, school principals, mentors of beginning teachers, mentors of teachers-in-training, and secondary teachers-as-coaches are working. Future studies should therefore examine the question of whether coaching in different educational settings influences the coaching practices of the coaches.

Finally, the training applied in the present study was largely based on Costa and Garmston's (1994) cognitive coaching model. This model is based on the assumption that overt instructional behaviours are determined and influenced by teachers' inner thought processes and beliefs. Coaches should therefore pay attention to teachers' internal thought processes of teaching as a means for improving instruction. This assumption is supported by findings from research on teacher beliefs showing that teachers' belief systems tend to be associated with a congruent style of teaching (Kagan, 1992). However, an alternative model of the process of teacher change has been proposed by Guskey (1986), who states that changes in teachers' thought processes or beliefs are likely to take place after changes in instructional practices and positive pupil learning outcomes are evidenced. Some support for this model comes from the literature on educational change (e.g., Fullan, 1991) and suggests that coaching programs should be aimed at enhancing successful teachers' classroom practices that directly enhance desired learning outcomes in pupils because "evidence of improvement (positive change) in the learning outcomes of

pupils generally precedes and may be a prerequisite to significant change in the beliefs and attitudes of most teachers” (Guskey, 1986, p. 7). Future studies should examine which model best describes the process of teacher change and which model is therefore better suited for the coaching of teachers.

## ACKNOWLEDGEMENTS

The data for this study resulted from graduate research supervised by the first author and conducted by students in Educational Sciences at the University of Nijmegen. We are indebted to Henk de Jonghe and Els van Wezel who collected the data for the training study with school counsellors; to Yvonne Visser and Nicóle Wijkamp who collected the data for the training study with school principals; to Hanneke de Laat and Corine Staring who collected the data for the training study with the mentors of beginning teachers; to Jacqueline Gerrits and Jacqueline Kenter who collected the data for the training study with the mentors of teachers-in-training; and to Marlôt Fliers and Hans Scheltinga who collected the data for the training study with secondary school teachers. Portions of this research project are based on their Master’s theses and have been presented at meetings of the Dutch and European educational research associations.

## REFERENCES

- Association for Supervision and Curriculum Development. (1988). *Another set of eyes: Conferencing skills*. Alexandria: Author.
- Baker, R.G. (1983). *The contribution of coaching to transfer of learning: An extension study*. Unpublished doctoral dissertation, University of Oregon.
- Ballantyne, R., Hansford, B., & Packer, J. (1995). Mentoring beginning teachers: A qualitative analysis of process and outcomes. *Educational Review*, 47(3), 297–308.
- Barnett, B.C. (1996). Developing reflection and expertise: Can mentors make the difference? *Journal of Educational Administration*, 33(5), 45–59.
- Bennett, B. (1987). *The effectiveness of staff development training practices: A meta-analysis*. Unpublished doctoral dissertation, University of Oregon.
- Bolam, R., McMahon, A., Pocklington, K., & Weindling, D. (1996). Mentoring for new headteachers: Recent British experience. *Journal of Educational Administration*, 33(5), 29–44.
- Bridges, E.M. (1992). *The incompetent teacher: Managerial responses*. Washington: Falmer Press.

- Brock, B., & Grady, M.L. (1998). Beginning teacher induction programs: The role of the principal. *Clearing House*, 71(3), 179–183.
- Cogan, M.L. (1973). *Clinical supervision*. Boston: Houghton Mifflin.
- Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement*, 20(1), 37–46.
- Costa, A.L., & Garmston, R.J. (1994). *Cognitive coaching: A foundation for Renaissance schools*. Norwood, MA: Christopher-Gordon.
- Dunne, E., & Bennett, N. (1997). Mentoring processes in school-based training. *British Educational Research Journal*, 23(2), 225–237.
- Fullan, M.G. (1991). *The new meaning of educational change*. New York: Teachers College Press.
- Furlong, J. (2000). School mentors and university tutors: Lessons from the English experiment. *Theory into Practice*, 39(1), 12–19.
- Gold, Y. (1996). Beginning teacher support: Attrition, mentoring, and induction. In J. Sikula, T.J. Buttery, & E. Guyton (Eds.), *Handbook of research on teacher education* (pp. 548–594). New York: Macmillan.
- Goldhammer, R. (1969). *Clinical supervision: Special methods for the supervision of teachers*. New York: Holt, Rinehart and Winston.
- Goldhammer, R., Anderson, R.H., & Krajewski, R.J. (1993). *Clinical supervision: Special methods for the supervision of teachers* (3rd ed.). New York: Holt, Rinehart and Winston.
- Gratch, A. (1998). Beginning teacher and mentor relationships. *Journal of Teacher Education*, 49(3), 220–227.
- Guskey, T.T. (1986). Staff development and the process of teacher change. *Educational Researcher*, 15(5), 5–12.
- Hallinger, P., & Heck, R.H. (1998). Exploring the principal's contribution to school effectiveness: 1980–1995. *School Effectiveness and School Improvement*, 9, 157–191.
- Hallinger, P., & Leithwood, K. (1994). Introduction: Exploring the impact of principal leadership. *School Effectiveness and School Improvement*, 5, 206–218.
- Houtveen, A.A.M. (1990). *Begeleiden van vernieuwingen* [Guidance of change]. Doctoral dissertation, University of Utrecht.
- Huling-Austin, L. (1992). Research on learning to teach: Implications for teacher induction and mentoring programs. *Journal of Teacher Education*, 43(3), 173–180.
- Hunter, M., & Russel, D. (1990). *Mastering coaching and supervision*. El Segundo: TIP Publications.
- Jones, L., Reid, D., & Bevins, S. (1997). Teachers' perceptions in a collaborative model of initial teacher training. *Journal of Education for Teaching*, 23(3), 253–262.
- Joyce, B., & Showers, B. (1980). Improving inservice training: The messages of research. *Educational Leadership*, 37(5), 379–385.
- Joyce, B., & Showers, B. (1995). *Student achievement through staff development: Fundamentals of school renewal*. New York: Longman.
- Kagan, D. M. (1992). Implications of research on teacher belief. *Educational Psychologist*, 27(1), 65–90.
- Koetsier, C.P., & Wubbels, J.T. (1995). Bridging the gap between initial teacher training and teacher induction. *Journal of Education for Teaching*, 21(3), 333–345.
- Koetsier, C.P., Wubbels, J.T., & Korthagen, F.A.J. (1997). Learning from practice: The case of Dutch postgraduate teacher education programme. In M.I. Fuller & A.J. Rosie (Eds.),



- Teacher education and school partnerships* (pp. 113–132). Lewiston: Edwin Mellen Press.
- Kohler, F.W., & Crilley, K.M. (1997). Effects of peer coaching on teacher and student outcomes. *Journal of Educational Research*, 90(4), 240–250.
- Levine, D.U., & Lezotte, L.W. (1990). *Unusually effective schools: A review and analysis of research and practice*. Madison: National Center for Effective Schools Research and Development.
- Licklider, B.L. (1995). The effects of peer coaching cycles on teacher use of a complex teaching skill and teachers' sense of efficacy. *Journal of Personnel Evaluation in Education*, 9(1), 55–68.
- MacLennan, N. (1995). *Coaching and mentoring*. Aldershot: Gower.
- Marks, H.M., & Seashore Louis, K. (1997). Does teacher empowerment affect the classroom? The implications of teacher empowerment for instructional practice and student academic performance. *Educational Evaluation and Policy Analysis*, 19(3), 245–275.
- McNally, P., & Martin, S. (1998). Support and challenge in learning to teach: The role of mentor. *Asia-Pacific Journal of Teacher Education*, 26(1), 39–50.
- Morgan, R.L., Menlove, R. (1994). Effects of peer coaching on the acquisition of direct instruction skills by low-performing preservice teachers. *Journal of Special Education*, 28(1), 59–76.
- Morgan, R.L., Gustafson, K.J., Hudson, P.J., & Salzberg, C.L. (1992). Peer coaching in a preservice special education program. *Teacher Education and Special Education*, 15(4), 249–258.
- Mullen, C.A., & Kealy, W.A. (Eds.). (2000). New visions of mentoring. *Theory into Practice*, 39(1), 2–3.
- Olejnik, S., & Algina, J. (2000). Measures of effect size for comparative studies: Applications, interpretations, and limitations. *Contemporary Educational Psychology*, 25(3), 239–286.
- Pajak, E. (1993). *Approaches to clinical supervision: Alternatives for improving instruction*. Norwood, MA: Christopher-Gordon.
- Pavan, B.N. (1993). Examining clinical supervision practice. In R.H. Anderson & K.J. Snyder (Eds.), *Clinical supervision: Coaching for higher performance* (pp. 135–154). Lancaster: Technomic.
- Roelofs, E., Veenman, S., & Raemaekers, J. (1994). Improving instruction and classroom management behaviour in mixed-age classrooms: Results of two improvement studies. *Educational Studies*, 20(1), 105–126.
- Scheerens, J., & Bosker, R. (1997). *The foundations of educational effectiveness*. Oxford: Pergamon.
- Schön, D.A. (1983). *The reflective practitioner*. New York: Basic Books.
- Schön, D.A. (1990). *Educating the reflective practitioner*. San Francisco: Jossey-Bass.
- Showers, B. (1982). *Transfer of training: The contribution of coaching*. Eugene, OR: Center for Educational Policy and Management.
- Showers, B., & Joyce, B. (1996). The evolution of peer coaching. *Educational Leadership*, 53(6), 12–16.
- Shuell, T.J. (1996). Teaching and learning in a classroom context. In D.C. Berliner & R.C. Calfee (Eds.), *Handbook of educational psychology* (pp. 726–764). New York: Macmillan.
- Sinclair, C. (1997). Redefining the role of the university lecturer in school-based teacher education. *Asia-Pacific Journal of Teacher Education*, 25(3), 309–324.

- Sparks, G.M., & Bruder, S. (1987). Before and after peer coaching. *Educational Leadership*, 45(3), 54–57.
- Stanulis, R.N., & Russell, D. (2000). ‘Jumping in’: Trust and communication in mentoring student teachers. *Teaching and Teacher Education*, 16(1), 65–80.
- Tomlinson, P. (1995). *Understanding mentoring: Reflective strategies for school-based teacher preparation*. Buckingham: Open University Press.
- Van Petegem, P. (1998). *Scholen op zoek naar kwaliteit: Effectieve-scholenonderzoek als inspiratiebron voor de zelfevaluatie van scholen* [Schools searching for quality: School effectiveness research as a means of self-evaluation for schools]. Doctoral dissertation, University of Gent.
- Veenman, S. (1984). Perceived problems of beginning teachers. *Review of Educational Research*, 54(2), 143–178.
- Yeomans, R., & Sampson, J. (Eds.). (1994). *Mentorship in the primary school*. London: Farmer Press.
- Winer, B.J. (1971). *Statistical principles in experimental design*. New York: McGraw Hill.
- Zeichner, K. (1992). Rethinking the practicum in the professional development school partnership. *Journal of Teacher Education*, 43(4), 296–307.